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## Think, act & play im Leadership der Kybernetik zweiter Ordnung

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# Leadership in a second-order cybernetics world

Ray Ison<sup>1</sup> and Rosalind Armson<sup>2</sup>

## 1. Introduction/context

We come to this assignment and our understanding of 'leadership' from our experiences as practitioners with feet very firmly in the academic world. But our academic world is different to many others. For a start we are at The Open University (OU) in the UK. The OU has been described as the greatest innovation in UK higher education in the twentieth century (Daniel 1996). It has pioneered two significant developments - open entry and supported open learning - and it has created a unique learning experience that combines high quality with low unit cost. Moreover, it has demonstrated that open learning is popular with adults. The OU is the UK's largest university. Over 200,000 adults currently study OU courses and materials and since 1971 it has taught over two and a half million people of whom 380,000 have gained a qualification. Currently 22 per cent of all UK part-time higher education students study with the OU. The commitment to openness, which in practice means no prior qualifications are required at undergraduate level, sets, in contrast to other institutions, a different emotional contract with students – it is an invitation, not a demand.

Whilst anchored in the OU and our pedagogic practices, our systems practice extends more widely into the OU and our external research and consultancy activities. We have in common an enthusiasm for explanations that arise in the field of second-order cybernetics and we employ these in our practice. However, as Systems academics we are aware of the rich history of Systems scholarship (Figure 1) and we draw on different understandings, methods, techniques and tools in the work that we do.

Two clusters in Figure 1 are associated with cybernetics, from the Greek meaning 'helmsman' or 'steersman'. The term was coined to deal with concerns about feedback as exemplified by the person at the helm responding to wind and currents so as to stay on course. A key image of first order cybernetics is that of the thermostat controlled radiator – when temperatures deviate from the optimum feedback processes adjust the heat input to maintain the desired temperature. In our experience first-order understandings of communication and control are still widespread in organisations and in some understandings of leadership.

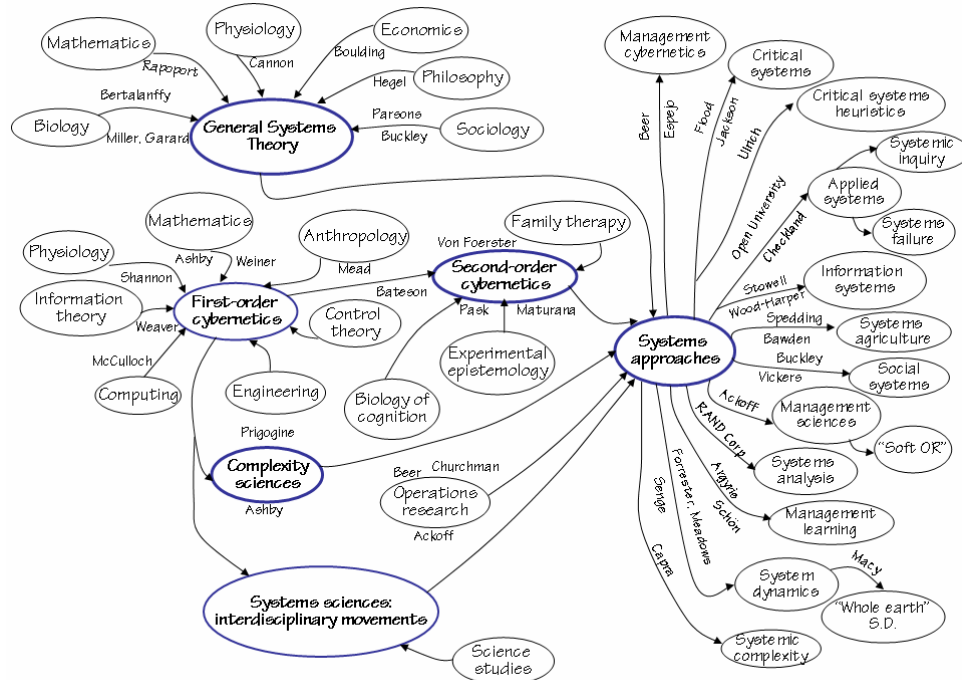
As outlined by Fell and Russell (2000) the first-order cybernetic

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'idea of communication as the transmission of unambiguous signals which are codes for information has been found wanting in many respects. Heinz von Foerster, reflecting on the reports he edited for the Macy Conferences that were so influential in developing communication theory in the 1950s, said it was an unfortunate linguistic error to use the word 'information' instead of 'signal' because the misleading idea of 'information transfer' has held up progress in this field (Capra 1996). In the latest theories the biological basis of the language we use has become a central theme'.



**Figure 2. Some of the influences, as lineages, which give rise to contemporary approaches to systems thinking and practice (Source: Ison 2007).**

Fell and Russell (2000) go on to describe the emergence of second-order cybernetics in the following terms:

*'second-order cybernetics is a theory of the observer rather than what is being observed. Heinz von Foerster's phrase, "the cybernetics of cybernetics" was apparently first used by him in the early 1960s as the title of Margaret Mead's opening speech at the first meeting of the American Cybernetics Society when she had not provided written notes for the Proceedings (van der Vijver 1997).'*

The move from first to second-order cybernetics is a substantial philosophical and epistemological jump as it returns to the core cybernetic concept of 'circularity', or recursion, by recognising that observers bring forth their worlds (Maturana and Poerksen 2004; von Foerster and Poerksen, 2004). von Foerster (1992), following Wittgenstein, put the differences in the following terms:

*"Am I apart from the universe? That is, whenever I look am I looking through a peephole upon an unfolding universe [the first-order tradition]? Or: Am I part of the universe? That is, whenever I act, I am changing myself and the universe as well [the second-order tradition]?"*

He goes on to say

*"Whenever I reflect upon these two alternatives, I am surprised again and again by the depth of the abyss that separates the two fundamentally different worlds that can be created by such a choice: Either to see myself as a citizen of an independent universe, whose regularities, rules and customs I may eventually discover, or to see myself as the participant in a conspiracy whose customs, rules and regulations we are now inventing."*

It is worth making the point that understandings from second-order cybernetic have been influential in fields as diverse as family therapy and environmental management. Some authors equate a second order cybernetic tradition with radical constructivism although not all agree.

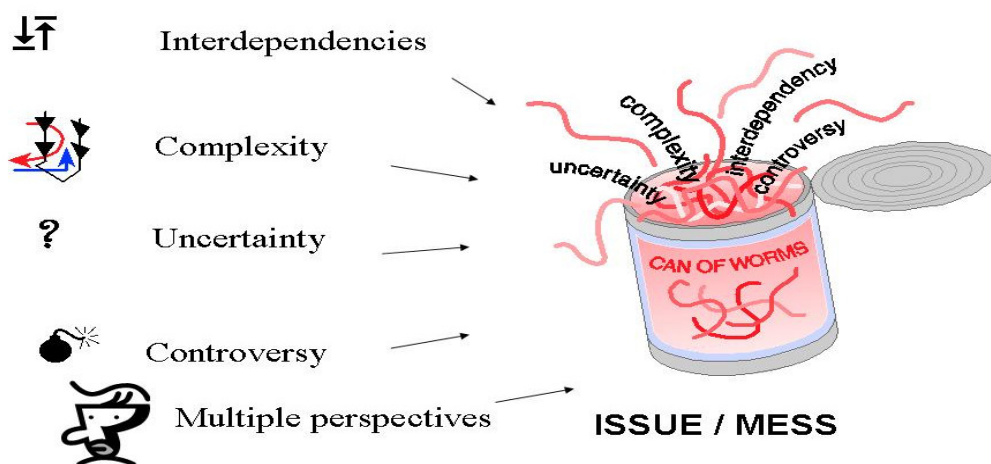
One of the main attractions for us of second-order cybernetics understandings is that it is an intellectual tradition which, when embodied, brings forth an ethics of living that we find satisfying and which we find useful for making sense of what we experience in daily life. A second-order ethic is grounded in action (praxis) and not in an abstract code or concepts; when experienced leadership is experienced. From this perspective leadership arises in action in a given context – it is an emergent and relational property.

In the remainder of this article we explore why we find second-order cybernetic explanations and 'doings' satisfying and how we incorporate a range of systems approaches into our practices. We draw on three main practice contexts for exploring leadership and our second-order cybernetic groundings. The first is the PersSyst Project, an investment of over £1 million over five years by the OU to develop systems thinking and practice skills as a basis for 'distributed leadership'. This is a joint project of the Systems Department and the Human Resources Division of the OU, directed by Rosalind Armson with the OU's Vice Chancellor (the title of the CEO in an English university) chairing the project board. The second is a project run since 2003 with the Environment Agency (England & Wales) designed to introduce social learning and systems practice into the policies and practices of river-basin managing (Collins, Ison and Blackmore 2005). We support these examples by drawing on material from our OU 'systems teaching' practice.

The projects we draw upon have a number of features in common:

- (i) we work within situations that can be characterised as a 'mess' (Ackoff 1974). Some of the features of a mess are shown in Figure 3. In our teaching and practice Ackoff's distinction between 'messes' and 'difficulties' (Box 1) consistently help people to make sense of their situation (see below);
- (ii) the 'projects' have not been set up as traditional projects (and thus managed in a typically first-order project managing manner) but rather as systemic inquiry encompassing action research elements (see below);
- (iii) consistent with second-order understandings we recognise that as researchers, facilitators, etc. we are part of the situation – there is no external 'objective' position;
- (iv) responsibility replaces objectivity i.e. we take responsibility for what we do and create the circumstances where others can be both response-able and responsible (e.g. we do not consult for, or attempt to resolve messes for those we engage with but create the circumstances for them to do it themselves).

The remainder of this article is structured around a set of seven features of our work. This framing arose in conversations reviewing what had been done as part of the PersSyst Project.



**Figure 4. Some of the characteristics of situations that are best considered as 'messes'. (Source: SLIM 2004)**

### ***Box 2. Difficulties and Messes***

Situations vary enormously in their complexity and seriousness. They range from minor upsets through to near-catastrophes, from temporary hitches to persistent, gnawing 'tangles', 'puzzles' or 'problems' through to interesting 'challenges' and exciting 'opportunities'.

Although there are these many different words that we use to describe situations we believe it helps to introduce a particular distinction: We refer to simpler, more limited sorts of situations as *difficulties* and the nastier more taxing ones as *messes*. The reason for making this distinction is that messes aren't just 'bigger' than difficulties: they have a number of features that make them qualitatively different. As a result the sort of activity needed to tackle them is very different.

Messes are characteristically bigger than difficulties. More people are involved, the implications are more serious, there are a larger number of interlocking aspects and issues may take on a number of different guises. Messes may also exist through a longer time span. The size of a mess is not the essential distinction between a difficulty and a mess.

With messes there is much more about which one is simply unsure. In fact, this uncertainty starts with the situation itself: a difficulty is fairly clear cut; it's quite easy to put a label on it, or to explain to someone else what the situation is. But a mess is hard to pin down; it's difficult even to say what the situation of concern actually is, and yet things are not right. With a difficulty we know roughly what an answer will look like: with a mess, we're not at all sure. Indeed, with a mess it usually doesn't make much sense to talk about 'an answer'. It's more a matter of coping with the circumstances as best one can. With a difficulty we can take for granted the overall context and purpose of the activity; it's simply a matter of how it can best be done. But a mess calls priorities and assumptions into question; One is not sure how much weight to give to different considerations, whether particular goals are realistic or should be abandoned. Moreover, with a mess more aspects are beyond my direct control.

With a difficulty we know what factors are part of the situation or relevant to it, and what aren't; we can disentangle it from the broader context of the work and address it as a more or less discrete matter. But a mess is fuzzy; it's hard to say who and what is involved in the problem and who and what isn't because the different elements in it are closely tied to other areas of activity. Finally, with a difficulty we either know enough to tackle it or we know

what we need to find out. With a mess we don't know enough and we're uncertain even what we need to know. Features of this sort are characteristic of messy problems and generate a distinctive quality of uncertainty, of 'not knowing', and hence of unease when one faces them.

All of this means that difficulties and messes must be treated in different ways ... and we have a choice to see situations as either.

## 2. Practice in which the other arises as a legitimate other

Our practice starts with an attempt to acknowledge the prior experience of those we engage with; we attempt to create for those involved the experience of their prior experience being valued. As much as possible we try to work by invitation – an invitation is grounded in a particular emotion that is different to a request or a demand. It is important, therefore to strive to understand, within organisational settings, what will and will not be experienced as an invitation.

Our starting position is grounded in our understanding of the biology of cognition as espoused by Humberto Maturana i.e. love, an emotion, arises when an other arises as a legitimate other (this does not necessarily have to be another person). This is not a romantic notion but quite practical – it can be as simple as acknowledging someone through the act of saying 'good morning' in a manner that creates the experience we associate with authenticity, concern or love. As with Maturana, we appreciate that the operation of love, so explained, does not require agreement by anyone. In our practice we try to surface difference and avoid premature attempts at agreement.

Because the situations we operate in are usually best characterised as messes, we see an ethical responsibility not to press any sense that people should, or ought, to use the systems approaches we offer. Although we experience systems approaches as offering ways forward in the face of complexity, we believe nonetheless that their usefulness is an emergent property of the interaction between the approach, the person and the situation they face. However powerful we believe the systems approach to be, we cannot make claims about the usefulness of them for another. Many of the people we work with experience their work as pressured and stressful and we have no wish to add another 'ought-to' to their workload. We claim only that we and others have found systems approaches to be useful. Thus the invitation to engage with systems ideas is made with recognition that we have to allow the recipient of the invitation the freedom to decline, without prejudice to any existing or future relationship we



have with them. This has sometimes required a determined stand in organisations accustomed to 'rolling out' staff-development programmes that carry an implied compulsion. Although we have chosen to frame this as an ethical stance, grounded in the biology of love, it is also pedagogically expedient. People learn much faster and more effectively when they have freely chosen to engage. It has enabled us to build our work on enthusiasm. We observe that this strategy has resulted in the generation of as much demand for development activities as we can meet. Participants self-nominate for workshops based mainly on the experiences of colleagues who have experienced the workshops and are now using the approaches effectively.

An implication of this invitation is that those involved are asked to take responsibility for developing their own systems practice and to work with us, initially, to co-inquire or co-research into the mess that is of most concern to them. McClintock, Ison and Armson (2003) describe how we understand 'researching with' others. In this work we draw on our pedagogic practice for educating the systems practitioner.

For example, the organizing metaphor for the OU course 'Managing complexity. A systems approach' is that of a juggler (Figure 5)<sup>3</sup>. It resonates with many because of the dynamics it reveals and the congruence it has with daily living – of juggling task, roles, responsibilities, explanations, etc. By employing this metaphor we are attempting to avoid the trap of reifying the systems practitioner as 'leader', manager, consultant or specialist but as anyone involved in managing - something we all do as part of daily life. The juggler in our metaphor juggles four balls.

The first ball the effective practitioner juggles is that of Being. It is relevant to practice which recognises the other as a legitimate other. Juggling is a particularly apt metaphor in this regard because good practice results from getting in touch with yourself – from centring your body and connecting to the floor. So juggling arises from a particular 'disposition' or embodiment. Effective juggling is thus an embodied way of knowing. Lakoff and Johnson (1999) argue that in the Western world, the most common sense view of what a person is arises from a false philosophical view, that of disembodied reason, that has influenced almost all of the professions. They contrast this with an embodied person. For example in medicine until quite recently the brain was seen as quite distinct from the body – the mind-body

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<sup>3</sup> In personal communication Humberto Maturana has claimed that the juggler, with respect to systemic practice, is an isophor not a metaphor. For Maturana, isophors are distinct from metaphors in that they are experienced directly; with the isophor there is no separation between thought and action, between feeling and experience. The experience itself is evoked through the relation. This avoids the notion of metaphor as commonly understood to mean the description of one thing in terms of another which presupposes an objective reality.

dualism – whereas the brain is part of a much larger network that includes the nervous, endocrine and immune systems (e.g. Pert, 1997).

Being is concerned with embodiment, with our own awareness and thus with our ethics of action and the responsibility we take as citizens. How a practitioner engages with a situation is not just a property of the situation. It is primarily a property of the background, experiences and prejudices (pre-understandings) of being the practitioner. This brings into focus some of the attributes of the practitioner. One of these attributes is awareness, awareness of self in relation to the balls being juggled and the context for this juggling but also epistemological awareness (i.e. how we come to know what we claim to know).

### ***Box 3 Managing for Enthusiasm***

A key aspect of our practice has become ‘managing for enthusiasm’. Enthusiasm comes from the Greek *en theos* meaning ‘the God within’ and can be contrasted with the more widespread belief that better information is the main precursor to taking action. We draw on a research project designed around the concept of enthusiasm as theory, biological (emotional) driving force and methodology conducted by Russell and Ison (2000). We find that starting off in ways that involve active listening, generating stories and generally experiencing the emotion of acceptance can trigger enthusiasms for action. Below we describe an exercise we have used in workshops to trigger an appreciation of ‘enthusiasm’. The importance of enthusiasm was recognised by Paul Coelho (1995) in his novel, *The Alchemist*, (p. 64):

*‘But the sheep had taught him something even more important: that there was a language in the world that everyone understood, a language the boy had used throughout the time that he was trying to improve things at the shop. It was the language of enthusiasm..’*

The workshop is designed to explore interactively with participants how enthusiasm might be triggered and how it can become the basis of methodology as well as theory for purposeful action with a different ethic to the common notion that action is driven by an external resource such as information.

### Outline of session

- (i) Start this session experientially working in groups of three (see below).
- (ii) Narrate a story from own experience about enthusiasm.
- (iii) Give space for conversation and the emergence of new insights in the final phase of the session

For part (i) the following roles are assigned.

#### Role 1

Your role is that of interviewee. This is a critical role but is not demanding.

I would like you to try to keep track of some of the unexpressed things you think and feel during the interview.

When the exercise finishes and we reflect on what happened I invite you to tell others something about these thoughts and feelings.

#### Role 2

Your role is that of interviewer. This is a pivotal role that will require some focused attention.

Your primary purpose is to provide the interviewee with the experience of being actively (unconditionally) listened to. You are trying to create the circumstances for the emergence (triggering) of enthusiasm through the narration of personal stories.

Set the scene by inviting the interviewee to relate their experience of being in the OU in terms of past, present and anticipated future.

e.g. Thanks for agreeing to be an interviewee; in the time we have I am really interested to learn more about your time at the OU and what you now do and might do in the future.

THEN

e.g. Well lets start. I am really interested to know how you came to be at the OU

This is a possible starting question – which invites the listener to narrate a story about the past; and suggests, if accompanied by the right body language and emotion that you are genuinely interested....

Active listening involves:

- Appropriate body language
- Eye contact when possible
- Conveying your own enthusiasm for the task at hand
- Use questions sparingly and mainly to check your understanding
- Not leaving people on an emotional ledge by suddenly stopping – i.e. bring people out of the interview slowly;
- Try not to interrupt
- Be open to the emotional state of the interviewee (e.g. be open to experiencing enthusiasm in the interviewee);
- Exploit natural pauses to move into new areas but do not try to fill up all the pauses with your own voice;
- Thank them for participating at the end.

Remember the exercise is to provide the other with the experience of being listened to, not to get the 'facts' about their OU experience.

If you start with past you do not have to move in sequence to present and future – use cues in the interviewee's narrative as to which direction to go.

Try to monitor your own thoughts and feelings as you go along and offer reflections on these in the debrief at the end of the session.

At the end of the 'interview' it is feasible that you may have had to only ask three questions.

### Role 3

Your role is that of observer of an interview being conducted between two other people.

I would like you to make notes on:

- How you experience the dynamic of the interview as it unfolds;
- What emotions you experience – from the interviewee and interviewer;
- What thoughts and emotions you have yourself as the interview unfolds

The interviewer has been asked to engage in active listening which entails the following:

- Appropriate body language
- Eye contact when possible
- Conveying your own enthusiasm for the task at hand
- Use questions sparingly and mainly to check your understanding
- Not leaving people on an emotional ledge by suddenly stopping – i.e. bring people out of the interview slowly;
- Try not to interrupt
- Be open to the emotional state of the interviewee (e.g. be open to experiencing enthusiasm in the interviewee);
- Exploit natural pauses to move into new areas but do not try to fill up all the pauses with your own voice;
- Thank them for participating at the end.

Please provide the interviewer with feedback on their active listening in the debrief at the end (but not until the interviewee has described their experience of the interview).

Note any other matters you experience as important.

#### ***Box 4. Juggling the B Ball: Systemic communication -living in language***

Relatively recent findings in cognitive science (e.g. colour perception), which are not widely appreciated, challenge some widely held 'common sense' notions. Take information for example. Many people assume that individuals would be better decision makers if they had better information. But how do we gain this information? Since about 1950, the prevailing view in cognitive science has been that the nervous system picks up information from the environment and processes it to provide a representation of the outside world in our brain. This has been described as the information-processing model of the mind.

We now know that the nervous system is closed, without inputs or outputs, and its cognitive operation reflects only its own organization. Because of this, we are imposing our constructed information – or our meaning – on to the environment, rather than the other way around. This implies our interactions with the 'real world', including other people, can never be deterministic; there are no unambiguous external signals. Instead, our interactions consist of non-specific triggers, which we each interpret strictly according to our own internal structural dynamics (Fell and Russell, 2000). This has profound implications for how human

communication is understood – it is not signal or information transfer but a process of meaning construction.

Within this line of reasoning it is argued by Maturana that we human beings exist, and are realized as such, in conversations. It is not that we use conversations; we are a flow of conversations. A human being is a dynamic manner of being in language, not a body, not an entity that has an existence independent of language, and which can then use language as an instrument for communication.

For example when the word nature is used in modern Western discourse it is often used in such a way that leads us to live as if we human beings are outside nature. The concept 'nature' thus structures who we are and what we do. In some indigenous, non-western languages the term or concept does not exist. Obviously, this view has implications for what we mean by communication within systems practice.

The notion that we exist in language and co-construct meaning in human communication, much as dancers co-construct the tango or samba on the dance floor, suggests the need to consider on what basis we might accept that understanding has occurred. Asking this question is like opening a Pandora's box.

In our work we have used the following exercise which is built on a second-order understanding of language and the role of metaphor (see McClintock, Ison and Armson 2004).

#### **Exercise . Conversation mapping plus metaphor 'spotter'**

1. Organise tables with groups of five people; four to be engaged in a conversation-mapping exercise (Figure 4).
2. if the person to 'spot' metaphors that come up in the conversation and to record these for later use. The following guidelines for metaphor 'spotting' are used by this person:

For our purpose a metaphor can be seen as a description and recognised by the use of the words 'is' and 'as' Schön (1979) pointed to metaphors as 'seeing as', that is 'seeing X as Y'. In the process of restructuring, perceptions of both X and Y are transformed. For the time being, 'seeing X as Y' gives a reasonable operational definition of a metaphor

- Engaging with metaphor in a dialogic process can enable new understandings to emerge about the extent to which particular metaphors-in-use might be disabling: e.g. 'countryside as a tapestry' reveals? and conceals?
3. Run for 20 minutes then 10-15 minutes feedback
  4. Have general introduction to metaphor theory and spotting metaphors (use powerpoint slide presentation)
  5. Use a document that participants are preparing or that is important to their work and which they have with them (organised in advance) to do a metaphor analysis;
  6. Collect and classify all metaphors using Krippendorff's (1993) schema
  7. Identify novel metaphor clusters
  8. Explore entailments of metaphors and implications for practice and for working in the organisation.

In our workshops built around the juggler as practitioner (Figure 6) we draw attention to the emotional basis of our being, particularly our enthusiasm (Box 5) and the implications of living in language and the metaphorical basis of human communication (Box 6).

We used 'the juggler' conceptually and practically to design a recent PersSyst 'masterclass' for an emerging cadre of 'systems practitioners. Material from Boxes 1 to 3 was employed. Feedback from middle and senior management staff included:

*'I will find everything that we did very useful and as I mentioned this afternoon, very applicable to some tricky issues that I am working with at the moment. I am certainly keen to consider how we can introduce systems thinking more firmly into the Faculty..'* (A Dean of Faculty)

*'Thank you for one of the best courses I've ever been on. I was mentally stimulated and started to learn a practical skill - what more could you want?'*  
(Media Account Manager).

Awareness of the Being-ball invites awareness of our ethics of action. In Box 7 we outline a statement of ethics, built on second-order understandings and prepared as part of a contractual agreement for research which was put into practice as a systemic inquiry (see below).

*Box 8. A statement of ethics agreed between The Open University and the Environment Agency (EA)-funded project 'WFD (Water Framework Directive) and River Basin Planning Project - Social Learning'.*

### **Background**

This is not a code of ethics. It is a statement of how we intend to work together in undertaking a collaborative research project. It is thus about our ambitions concerning joint practice, our ways of relating and conversing.

There are important distinctions to be made about the connection between research and ethical practice (Helme 1992). For example, a distinction can be made between 'fixed rule language games' like the judicial system, and 'emergent rule language games' (Wittgenstein 1999), as in contract law. We consider, for the purpose of this research, ethics in research to be an emergent language game, that is, rather than being captured in pre-specified codes, ethics arise in lived experience. The meaning of what counts as ethical for that conversation is brought forth in the conversation and in the practices that emerge from these encounters (e.g. in writing documents, papers, reporting on what has happened). Thus 'it is working on developing a Code [of Ethics] that foregrounds ethical issues rather than the code itself' (Helme 2002). From this perspective our project will not predefine what our Ethics are but will carry this as an ongoing conversation throughout our joint activity. It will not however be implicit – we will always come back to it in our joint engagements.

The mutuality of conversations is also recognised by Clandinin & Connelly (1998) who claim that the conversational form in qualitative research is marked by:

- equality among participants;
- flexibility to allow participants to establish the form and topics important to their inquiry;
- listening;
- probing in a situation of mutual trust, and caring for the experiences described by the other.

We agree with this as a starting point in our on-going activities.

### **An ethical agenda**

The agenda below is an invitation for us to talk about these matters, not a set of imperatives:

- We will be open with each other about our mutual expectations;
- We will commit to reflective practice;



- We acknowledge that certain contractual obligations will need to be codified and we will work to ensure that these keep open, as much as possible, the space for our ethical conversation;
- We will discuss and agree practices relating to writing-up, reporting and presenting about our joint activities and we will be clear with each other about matters of confidentiality and anonymity;
- In our practices we will acknowledge the work of others and invite others with whom we work to accept the same practice.

In concluding this section we want to point out that our practice does involve some workshops and out of 'context' activity but all are designed such that participants engage with issues that are live and real to them – not simulations as these have a different emotional basis. We also work hard to link up workshop events with in-situ activity although this is not always as easy to do logistically as we would like.

### 3. Extending an invitation to give up certainty

The distinction drawn by Ackoff between difficulties and messes (Box 1) has proved, over many years, to be a powerful way of introducing the ideas of systems thinking. Workshop participants recognise the distinction very readily and can draw on their own experience for examples of difficulties and messes. In our workshops we have found that becoming aware of this distinction is experienced by some as liberating. It allows them to recognise that unsuccessful attempts to 'solve' messes are not failures but characteristic of a particular type of situation. It suggests instead a strategy of 'improvement' rather than solution. Improvement in this context is multi-faceted but might be taken to mean:

- the recognition of improvement by stakeholders
- enhanced understanding of the situation such that
- further options for improvement become apparent.

Not all stakeholders will recognise the same improvement. Effective engagement with messes does not need the discovery of consensus about what constitutes improvement –as with Russell and Ison (2000) we have found in our own work that consensus undermines enthusiasm. It is preferable to seek improvement that meets the differing needs of the multiple stakeholders – Checkland (1999) refers to these as accommodations. This in turn suggests that a pre-negotiated outcome based on consensus cannot be found in messy situations – it involves instead a search for a way forward that, though not ideal for many if any, will at least constitute an improvement for most.

The temptation to treat messes as if they were difficulties is a strong one and role models that privilege decisive and heroic action are hard to transcend. However, our experience as systems practitioners suggests that treating messes as if they were difficulties always results in the re-emergence of perceived problems in some new, often more pernicious, form. Most such approaches are attempts to address a situation as if there were a clarity that does not exist for most of the stakeholders. Such approaches will, at best, be based on partial information and a partial solution to one person's version of 'the problem'. In messy situations such solutions are unlikely to elicit the buy-in of stakeholders and will receive no more than grudging compliance or lead to conflict. It requires both humility and self-confidence to let go of the quest for a 'solution' in situations of interconnectedness, uncertainty and ambiguity and to develop practice in which the perspectives and insights of others are accommodated.

In attempting to create capacity for competent management of messes, we observe that people will typically shrink their appreciation of a complex situation to what they can comfortably address within their existing competence. Some PersSyst participants claim never to have encountered a mess. This means that in an organisation, for example, messes eventually become invisible. It is as if, developing Schön's (1995) metaphor, the swampy ground is bypassed by various paths and diversions and sight of the swampy ground is eventually lost behind the tall grass and the long skirting path becomes the well worn and habitual approach to managing an issue. In an organisation this results in rigidity, loss of flexibility and responsiveness and dissipation of energy that might be more productively used elsewhere.

We observe that it is in facing these challenges that emergent leadership becomes visible. One of the leadership qualities we identify in PersSyst participants is when someone is able to take ownership of a situation that needs addressing and then creates the circumstances that enable it to be addressed. In the course of our work we have identified another 'moment of leadership' when someone is suddenly able to see messes in their environment for the first time and becomes conscious of the organisational cost of detours around them.

A second order perspective on Systems Thinking brings forth the concept of the systemic inquiry (Box 5). Systemic inquiry was characterised by one PersSyst participant as being 'what to do when you don't know what to do'. This is an apt expression of the essence of the systemic inquiry. It parallels the shift of attention that characterises systems thinking where the systems thinker attempts to understand more by looking at the system within the context

of a wider system. Systemic inquiry shifts the attention of the observer from discovering a way forward to an inquiry system for discovering a way forward.

The process of systemic inquiry is one where the experience of complexity in a situation is recognised as valid and not in itself problematic. A fluid epistemological stance towards the situation then allows the situation to be explored through a number of theoretical lenses and heuristic devices, including conceptual models of ideal relevant system. Systemic inquiry, which has learning as an emergent property, then allows for purposeful action, in pursuit of further understanding, to be taken to improve the situation.

**Box 5.** *A systemic inquiry into social learning for river basin planning and management within the Environment Agency (England & Wales)*

In this project, 'systemic inquiry' was conceived of as both a cyclic process of learning by doing (experiencing), reflecting, conceptualising (in systemic terms) and then planning a further cycle of learning (*sensu* Kolb 1983) or as means of managing in the daily flux of theorising and practising that constitutes our living (Checkland and Casar 1986; Checkland and Winter 2003).

**Figure 5.** An activity model of a system to conduct a systemic inquiry (Source: Checkland 2002).

Figure 5 is a conceptual model of the process of using soft systems methodology (SSM) as a systemic inquiry (Checkland 2002). In our situation systemic inquiry was used to progress:

- learning about the benefits and risks of social learning, especially in supporting more effective River Basin Planning; developing a conceptual framing for, and stakeholding in, a 'Programme of Measures' project (as required to implement the European Water Framework Directive and exploring how a new approach to river basin planning could be incorporated into the traditional 'business' of the Environment Agency (EA), a public sector statutory organization with c. 10,000 employees.
- learning how social learning could be extended to the engagement between agency staff and non-agency stakeholders in river basin management.

Our project was set up as a high level systemic inquiry with a number of constituent inquiries. What we proposed and did can be understood in terms of Figure 4 (see Collins et al 2005 for more details). Figure 5 is a conceptual model, using verbs as the modelling

language, for conducting a systemic inquiry. The focus is identifying the linked activities so that situations can be improved. A number of systems levels are depicted. The large system (the main shape) has two main activities:

- (i) set up structured exploration of a situation experienced as problematic (complex); and
- (ii) take action to change in the situation.

However to operate as a system this larger system depends on the activities of one sub-system (represented by an inner circle within the large shape). The sub-system has three activities depicted by the verbs (actions):

- (i) 'make sense of..' ,
- (ii) 'tease out ..accommodations' and
- (iii) 'define possible actions'.

In Figure 5, systemic inquiry begins with a process of sense-making of differing contexts, identifying areas where differences can be accommodated and moves on to defining possible actions. The overall inquiry (system) has to be monitored, measures of performance articulated against acceptable criteria (the three Es of efficacy, efficiency and effectiveness depicted here) and control action taken.

In practice the steps in this process are never systematic. Iteration and concurrent action in different stages depicted within different parts of the process are common. When joint action to change is taken as a result of key stakeholders learning their way to an understanding of what needs to be done then social learning has occurred because both changes in understanding and practices result (Figure 6; SLIM 2004) and the situation is progressed or transformed.

**Figure 6. An heuristic device for appreciating how changes in understanding and practices can give rise to transformed situations and social learning (concerted action) in situations of complexity and uncertainty (Source: SLIM 2004).**

Those who are familiar with systemic inquiry find that it forces a level of thinking that is conceptually rigorous. It is demanding in terms of thinking skills and also practice. Systemic inquiry can be conducted by a specialist who assists groups in this endeavour (without making the thinking behind it apparent) or it can be conducted with a group of stakeholders in a facilitated and participatory manner. In our research we have done elements of both. Figure 7 depicts how all the different elements can be brought together.

**Figure 7. Bringing the elements of a systemic inquiry together. (Source: Collins, Ison and Blackmore 2005).**

Systemic inquiry is a particular means of facilitating movement towards social learning (understood as concerted action by multiple stakeholders in situations of complexity and uncertainty). It can be seen as a meta-platform for 'project or programme managing' in that it has a focus on (i) understanding situations in context; (ii) addressing questions of purpose; (iii) clarifying and distinguishing 'whats' from 'how' as well as addressing 'why'; (iv) facilitating action that is purposeful and which is systemically desirable and culturally feasible and (v) a means to orchestrate practices across space and time which continue to address a phenomenon or phenomena of social concern when it is unclear at the start as to what would constitute an improvement.

#### **4. Surfacing people's mental models**

The use of systems diagrams is a key element among the systems approaches that have been taught by the Open University Systems Department for many years. Very little exploration of the purpose of using systems diagrams has emerged during this time although we and colleagues have each evolved 'theories-in-use' (Argyris and Schön, 1974). We observe that many students struggle with 'getting it right' and get stuck in the trap of believing that there is a system 'out there' to be represented. Working collaboratively with others to diagram liberates many into an appreciation that a systems diagram is a representation of an appreciation of what they observe.

Typically the diagrams we invite project participants to engage with include systems maps, multiple-cause diagrams, influence diagrams and conceptual models of human activity systems. The intention in encouraging this engagement is to help participants explore elements of interconnectedness in a situation that is otherwise perceived as complex and unstructured. Diagrams engage the diagrammer in a dialogue with the diagram in which attributions of causality and influence, boundary judgments and structure are articulated and interrogated.

We have repeatedly observed that discussing others' diagrams of the same situation reveals the very wide diversity of mental models and opens new opportunities for attentive, appreciative and often surprised listening to anothers' perspective. We have observed this

most forcefully in the context of rich pictures. Rich pictures are unstructured pictorial representations of ‘everything you know about the situation’. They derive their power from their lack of structure and act as notes that record the complexity encountered by the observer as he or she looks at a situation in which he or she wishes to take purposeful action. Rich pictures are usually rich in visual metaphor that allows unconscious evaluations to become visible. The emotions captured, both wittingly and unwittingly, in rich pictures become powerful triggers for rich conversations that allow different perspectives to become part of the shared learning about the situation. In particular, we observe that they allow emotions, values and perceptions of others to be discussed in ways not normally legitimated by organisational culture.

We have nonetheless been surprised when participants later report how their later use of diagrams in meetings has had positive effects on the quality of discussions in meetings. Someone typically prepares a diagram on a large sheet of paper before the meeting and offers it to the meeting as one way of representing the situation they are addressing. The diagram then allows differences in perception to be isolated and then becomes a road map for the subsequent conversation. Participants have reported back to us their delight in ‘one of the most productive meetings we’ve ever had’ or ‘at last we’ve stopped going round and round in circles’. In this example diagrams were used in a particular form of facilitation – as both a dialogical tool and an intermediary object (Box 6).

***Box 6. Facilitation tools and techniques used by SLIM researchers***

Several members of the OU Systems Department contributed to the EU-funded SLIM research project. SLIM stands for ‘Social learning for the integrated management and sustainable use of water at catchment scale’ (see <http://slim.open.ac.uk>). In their case studies SLIM researchers explored the use of many facilitating tools and techniques which can be categorised into five groups:

- A. Mapping and Diagramming: systems approaches have generated a range of diagramming techniques for visually representing different stakeholder issues and triggering meaningful interaction.
- B. Media technology: photography and information technology (IT) provide learning platforms for enabling meaningful “translation” of scientific data, and thereby enabling different interests to engage with official ‘plans’ and policies e.g., disposable

cameras in Italy; geographic information systems (GIS) and other uses of IT in France and Italy.

- C. Intermediary objects: living and non-living objects of mutual interest can be used as focal points of reference in identifying stakeholders and co-deliberating on stakeholdings e.g., a systems map' diagram can mediate practices and build stakeholding amongst a group of people if it is used as a dialogical tool rather than a representation of ;how things are'.
- D. Performance arts: experience in less-developed countries in using 'theatre' as a means of engaging local people (as co-designers and performers as well as through audience participation) are explored in the context of industrialised countries. E.g., intense co-operation between SLIM researchers at the Università Politecnica delle Marche and the theatre company, "La Botte e il Cilindro", for a civic theatre event at the Festa della Cicerchia in Serra de Conti, Italy, provided an opportunity for co-learning and future collaborative action on water use and pollution in the area.
- E. Metaphor exploration: actively questioning 'language' used in conveying and developing ideas amongst different stakeholder groups, provide an important technique for surfacing linguistic traps that often interfere with, or linguistic opportunities that enable development of, mutual understandings and opportunities for collaborative action. E.g., examining the linguistic entailments of terms such as 'rolling-out', 'platforms', 'tools', 'systems of interest' in facilitating cross-country and in-country SLIM meetings as well as facilitating communication between case-study stakeholders.

Adapted from SLIM (2004b)

We take this use of diagrams to be another indicator of emergent leadership – someone is talking a risk in presenting their perspective by drawing a public map but is nonetheless able to allow it to be seen as provisional and negotiable. The pattern of feedback around this issue is one in which we are able to take pleasure in the delight of participants in the contribution they are able to make, even though they experience themselves as unpracticed diagrammers.

The emergence of metaphors in rich pictures is also a data source for exploration of some of the dominant metaphors (see Box 3). Lakoff and Johnson (1999) draw attention to metaphors as mental models that both reveal and conceal aspects of the situation captured by the metaphor. Surfacing these aspects also allows new understandings to emerge. Whilst we use the term 'mental models' we do not hold that these are pre-given and can be 'discovered'. Our practice is grounded in second-order understandings of languaging and emotioning.

What is revealed through our practice can be claimed, on reflection to have been, 'mental models'; we claim the same for intentions – these are a narrative we tell ourselves but in the moment of our living we do what we do based on the flow of our emotions which are the main influence on our tradition of understanding out of which we think and act.

## 5. Orchestrating a particular type of conversation

Our experience suggests that the main feature of our evolving praxis is that it triggers a particular type of conversation which to an observer might be experienced as a systemic conversation. What makes it systemic or not arises, we suggest in social relations, and is not something that is necessarily defineable *a priori*.

Many, but not all, people have some form of systemic awareness, even though they may be unaware of the history of 'systems thinking and practice' as a particular field of practical and academic concern as depicted in Figure 1. We suggest systemic awareness comes from understanding:

- (i) 'cycles', such as the cycle between life and death, various nutrient cycles and the water cycle – the connections between rainfall, plant growth, evaporation, flooding, run-off, percolation etc. Through this sort of systemic logic water availability for plant growth can ultimately be linked to the milk production of grazing animals and such things as profit and other human motivations. Sometimes an awareness of connectivity is described in the language of chains, as in 'the food chain' and sometimes as networks, as in the 'web of life'. Other phrases include 'joined up', 'linked', 'holistic', 'whole systems', 'complex adaptive systems' etc;
- (ii) counterintuitive effects, such as realising that floods can represent times when you need to be even more careful about conserving water, as exemplified by the shortages of drinking water in the New Orleans floods that followed hurricane Katrina in 2005, and
- (iii) unintended consequences. Unintended consequences are not always knowable in advance but thinking about things systemically can often minimise them. They may arise because feedback processes (i.e. positive and negative feedback) are not appreciated. For example the designers of England's motorways did not plan for what is now experienced on a daily basis – congestion, traffic jams, emissions etc. These unintended consequences are a result of the gaps in thinking that went into designing and building new motorways as part of a broader 'transport system'.



Our perspective is that systems practice arises in social relations as part of daily life but only when a connection has been made with one or more of the lineages or histories of systems thinking as depicted in (but not restricted to) Figure 1. In practical terms systems practice can arise when we reflect on our own actions and make personal claims or when others observe actions that they would explain in reference to the history of systems thinking. From this perspective what is accepted (or not accepted) as systems practice arises in social relations as part of the praxis of daily living. In recognising systems practice it would be usual that some engagement with, and use of, the concepts such as emergence, connectivity, boundary, communication, control, layered structure etc would be experienced.

Our experience suggests that by engaging with others, as described in sections 2 and 3 above, it is possible to tap into people's 'natural' systemic awareness. Whilst this awareness is necessary it is not sufficient. There is not a lot to be gained from being aware that everything is interconnected. So our aspiration is to move beyond awareness to being able to pursue purposeful action that is experienced as systemic. To do this we offer systems concepts, tools, techniques and methods.

## 6. Engaging with, and offering, systems concepts, tools techniques and methods

One of the encouraging outcomes of our endeavour to build systems thinking and practice is that new ways of thinking appear to be triggered for some people by encounters with a relatively small number of systems tools. One such 'simple systems tool' is the 'PQR' formulation of root definitions proposed by Checkland and Scholes (1999). This is simply a definition of an ideal system in the form:

*A system to do <what, P> by means of <how, Q> in order to <why, R>.*

This definition identifies a system of interest in terms of what it does – its core transformation – together with its subsystems in terms of its constituent activities and the wider system of which it is a part and to which it contributes. Like many systems ideas, the PQR definition is a simple concept that is both demanding to formulate and revealing when finally identified. Project participants have learned to use this approach to clarify proposals for action that emerge from meetings and reports. They report observing that discussions in meetings frequently conflate these distinct systems levels. Participants also report, again with delight, that clarifying proposals for action using the PQR format have galvanising and

positive effects on meetings where they have used it. It allows for the source of disagreement or misunderstanding to be isolated and addressed without renegotiating what is already agreed. It is possible to hope that such approaches will free managers from the perceived need to micromanage the performance of the <how> because the <what> and <why> have been shared. Clarity about these three elements also allows people to take more responsibility for the performance of their own tasks because the wider purpose that it serves is understood.

A related approach, again derived from Checkland's Soft Systems Methodology (Checkland and Scholes, 1999) is 3Es: efficacy, efficiency and effectiveness. This approach to deciding how performance will be recognised is based on a hierarchic model of the system of interest. The 3Es approach simply asks its user to be explicit about how performance will be evaluated at the level of the system of interest (the efficacy of the 'what'); its subsystems (the efficiency of the 'hows') and its contribution to the wider purpose of a supra-system (the effectiveness of its contribution to 'why').

Through the lens of the metaphor of the systems practitioner as juggler we are keen, when developing diagramming skills, or introducing other methods, tools and techniques, to focus on the C-ball. The C in this case stands for contextualising and arises from our experience of practitioners all too often forcing the skill or technique in which they excel onto the situation. This is the antithesis of praxis – which involves the braiding of theory and practice for each unique situation.

## 7. Triggering the conservation of a new tradition of understanding

Through reflecting on our recent 'masterclass' with PersSyst participants designed around the juggler (Figure 3) it is possible account for what we mean in this section. Whilst not that many people can juggle (in the literal sense) riding a bicycle is something that most people have experienced – what is remarkable is that once you can do it then that ability seems to be conserved for a lifetime. Speaking for ourselves our ability to juggle (even three balls) has not yet been conserved as a manner of doing, even though we both made progress in our workshop. For our practice as jugglers to be conserved we would both have to do more work - more managing of our emerging performance. With more work, and attention to our managing (the M-ball and the fourth in our juggler metaphor), we may be able to develop our praxis as jugglers – inventing new tricks, composing new performances etc (Box 7). By engaging with other jugglers we may reach a stage where we became identified with a certain

‘juggling school’ or a particular lineage of juggling. By this stage we would have begun to conserve through our thinking and acting a particular ‘tradition of understanding’<sup>4</sup>.

### ***Box 7. Juggling the M-ball***

To appreciate what is involved in juggling the M-ball it is useful to explore perspectives on managing.

One way is to use a short ideas generating session to develop a list of all the verbs those present associate with the word managing, e.g.:

#### **ACTIVITY:**

*Generate and list all the verbs you associate with the word managing.*

*Sort through them and develop some categories that help you to group and make sense of your list.*

Some of the verbs we thought of were understanding, surviving, seeing, visioning, allocating, optimizing, communicating, commanding, controlling, helping, defending, leading, supporting, backing, enabling, coping, informing, modelling, facilitating, empowering, encouraging, delegating. We identified three categories that helped make sense of the list. These were (a) getting by; (b) getting on top of; and (c) creating space for. We make no claim that this list is definitive; our categories are ones that we found useful at the time.

Undoubtedly your list and categories will be different. This activity can be used with any document associated with your organisation and what has to be done. In one of our courses we use the example of the functions – the verbs – in the Act of Parliament that led to the establishment of the UK Child Support Agency, an excellent example of on-going systemic failure. These were process, trace, investigate, assess, collect and enforce. So these were the activities, presumably that had to be managed but which were not.

Verbs constitute the modelling language of SSM (Checkland and Poulter 2006) and from a second-order cybernetic perspective can be seen as a way of understanding our doings or ‘not doings’!

Our concern is with managing in all its manifestations and how these are embodied in a particular manager – how the juggling performance is sustained as both a practice and a purposeful activity.

<sup>4</sup> An important point here is that it is the doing that conserves a tradition, not its description. All academic descriptions do is conserve academic traditions of describing!

Following Russell and Ison (2000b) traditions in a culture embed what has been judged to be useful practice. The risk for any culture is that a tradition can become a blind spot when it evolves into practice that lacks any avenue for critical reflection. The effects of blind spots can be observed at the level of the individual, the group, the organisation, the nation or culture, and in the metaphors and discourses in which we are immersed (McClintock, Ison and Armson 2003; 2004). This explication of traditions of understanding and learning is built on Maturana and Varela's (1987) biological theory of cognition, particularly that of structural coupling. Structural coupling explains how as living organisms we can never escape acting on and being acted upon by, our context. At one and the same time we are both independent (maintaining our own organisation as a living system) as well as related (coupled) to our external world. This explanation challenges the common idea that we adapt to an environment, and replaces it with the idea of organisms and environments coevolving.

What begins to be conserved in an evolving systems practice is the ability to make systemic distinctions. The act of making a distinction is quite basic to what it is to be human – it is also something that happens to us. When we make a distinction we split the world into two parts: this and that. We separate the thing distinguished from its background. We do that when we distinguish a system from its environment. (Remember, using the word system is actually shorthand for specifying a system in relation to an environment.) In process terms, this is the same as drawing a circle on a sheet of paper. When the circle is closed, three different elements are brought forth at the same time: an inside, an outside and a border (in systems terminology, a boundary). In daily life we have developed all sorts of perceptual shortcuts that cause us to forget this is what we do – we live, most of the time, with our focus on one of these three elements: the inside, the outside, or the border. Biologically, we cannot focus on both sides of a distinction at the same time. It is because of this understanding that Heinz von Foerster (1984) claimed that the descriptions we make say more about ourselves than about the world we are describing.

Any practitioner, as a unique human being, is part of a lineage, a product of both biological (evolutionary and ontological) and social development, which we will call a tradition. Another way to describe this is that a tradition is the history of our being in the world and they give rise to our doings (Maturana and Poerkson 2004). Traditions are important because our models of understanding grow out of traditions - and change over time through the unfolding of structural coupling. We further define a tradition as a network of prejudices or pre-understandings that provide possible answers and strategies for action. As we grow and

develop we accept different explanations (theories) so traditions are not only ways to see and act, but also ways to conceal.

## 8. Situation improving

In managing messes it is not possible to give an account of 'success' in ways that identify a clear single chain of causation from intervention to result. Effectiveness (as opposed to efficacy or efficiency) is an emergent property of the situation, the participant, their engagement with the project and the context in which systems thinking is used. We have chosen to rely, therefore, on claims by project participants that the systems approaches we offer 'made a positive difference'. With this in mind we offer the following as a sample of stories told by PersSyst participants.

- A senior faculty administrator who is able to move forward her work with a team considering the restructuring of the faculty, such that the team 'begun to understand the need for success criteria' whilst be able to see that some criteria 'would be in tension'.
- A cross-functional communications team seeking to engage internal staff with new brand imagery exploring different perspectives and considering jargon. One member of the team was able to use the word 'conflict' to name some of the tension within the team.
- A human resources director who in working out a 'root definition' of her work with the senior management team was able to reframe her work with the team. She saw that she did not have to simply 'deliver a programme' and could instead design activity that would support the 'learning transformation' of the senior management team for the benefit of the university.
- A less adversarial relationship between a major service department and members of the rest of the university, whereby the Director of HR was able to arrive at a meeting and comment that he 'felt the warmth in the room'.
- An external consultant who is more able to recognise the 'incredible complexity of issues and projects' she was working on and feeling that she did not have to jump in with solutions in her work and feeling more confident 'to not always have the answer'
- A team of human resources developers more confident in their ability to take on new responsibilities for acting as internal consultants
- A senior manager in Marketing and Sales, using a series of systems diagrams with an interdepartmental team reviewing the brand style imagery, managed to generate a

less hostile and defensive attitude towards each other and foster a degree of shared ownership for the review that was considered a 'major breakthrough'.

- A team reviewing the provision of support to students gaining momentum and finding a 'clearer methodology for taking the review forward'
- A manager more able to 'make sense of complexity and pick out key leverage points', validating her ideas about 'the importance and validity of multiple perspectives.'
- A senior manager able to provide input (in the form of systems diagrams) that displayed 'understanding and provide[d] a potential solution to people who had a sense of being in silos' and which elicited the comment that '[I have] never had this [situation] made so clear to me so unequivocally'.

In our work with the Environment Agency what emerged was that (Collins et al 2005; Ison, Collins and Colvin 2007):

- Social learning and systems practice gave staff 'permission' to admit that they do not know what to do in a given situation (to give up certainty). They were then able to 'step back' and think about the purpose of a particular set of actions, the nature of the issue under consideration and current understandings, skills and approaches to achieving some change.
- A learning approach – embedded in the use of systems ideas – helped people express and explore confusion and uncertainty. It enabled the project team and Environment Agency staff to understand what river basin planning might be about, and how they might do it better.
- The project fulfilled one of its key aims: to provide the River Basin Planning team with the experience of learning their way towards what river basin planning means and how to go about it, in conjunction with a range of other Agency staff and, latterly, with external stakeholders. This helped them appreciate that the skills and experience to 'do' the WFD do not lie with one or two key staff or a single organisation.

Our work also raised awareness of:

- notions of complexity, uncertainty and interdependency in resource management;
- the Environment Agency's own practices and its approaches to 'messy' issues that have systemic interdependencies;
- the needs and practices for engaging with stakeholders;
- project management and initiation – particularly the deficiencies of the PRINCE2 method for systemic project management ;
- conceptual clarity about social learning in the Environment Agency;
- benefits and risks of using social learning.

What we find from this type of feedback and evaluation, including evaluation of our courses, is that enhanced 'leadership' is an emergent property of the engagement with systems thinking and practice. The conditions necessary, we suggest, for such emergence, are changes in understandings coupled with changes in practices (Figure 6).

## 9. Conclusions

Living in a second-order world is a choice we can make. Our preference is to see ourselves as part of the universe so that, whenever we act, we are changing ourselves and the universe as well. In our doings we bring forth a second-order tradition of understanding (recognising that this is a description we choose to give it). Having made this choice then we must take responsibility for our doings. For us, taking responsibility does not mean rejecting first-order understandings but acting with awareness, what we call an 'as if' attitude. In several of our courses we explore systemic and systematic thinking and practice as a duality rather than the more common, and unhelpful understanding of these as a self –negating dualism. An 'as if attitude' is an invitation to oneself to engage with others differently. It constitutes a change in the underlying emotion, being open to surprises, making practice your own, trying to recognise what maintains our enthusiasm and managing for emergence.

In our own practice, design is an important consideration, but in the sense of a 'work out' such that in our doings we have more choices in our behavioural repertoire. We try to avoiding the 'role out' and 'target' metaphors for what we do and know that things are failing (from our perspective) if our design becomes, or is experienced as, a blueprint rather than an emergent performance suited to the context. Appreciating the four balls of the metaphorical juggler helps us in this. In this paper we have not said much about the second ball, the E-ball, for 'engaging' although our distinction between mess and difficulty (Box 1) is key to this. The point being that how we engage with a situation is a choice we can make and has as much to do with us as it has with the situation.

We have said little about how awareness of second-order understandings of the relationship between structure and organisation can help open up spaces for change and begin to illuminate those institutional arrangements which constrain or enhance response-ability, and thus responsibility. These are issues we wish to address more in the future. Above all else we have to be open to our own learning as much as those we engage with – this is the path of co-evolution.

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## 11. References

- Ackoff, R.L. (1974) *Redesigning the Future*, Wiley, New York.
- Argyris, M. and Schön, D. 1974. *Theory in Practice. Increasing professional effectiveness*, San Francisco: Jossey-Bass.
- Capra, F. (1996) *The Web of Life. A New Synthesis of Mind and Matter*, HarperCollins, London.
- Checkland, P. (1999). *Soft Systems Methodology. A Thirty Year Retrospective*. In Checkland, P. and J. Scholes (1999). *Soft Systems Methodology in Action*. Chichester: John Wiley
- Checkland, P. (2002) 'The role of the practitioner in a soft systems study', notes of a talk given to OuSyS and UKSS, Saturday 8th December 2001, in Quarterly Newsletter of the Open University Systems Society (OUSyS), Open University, Milton Keynes, No. 27, March 2002, pp. S5-S11.
- Checkland, P.B. and Casar, A. (1986). Vicker's concept of an appreciative system: a systemic account. *Journal of Applied Systems Analysis*, 13, 3-17.
- Checkland, P.B. and Scholes, J. (1999) *Soft Systems Methodology in Action*, 2nd ed. Wiley, Chichester.



- Checkland, P.B. and Poulter, J. (2006) *Learning for action. A short definitive account of soft systems methodology and its use for practitioners, teachers and students.* John Wiley & Sons, Chichester.
- Clandinin, D.J. and Connelly, F.M. (1998) *Personal experience methods.* In N.K. Denzin and Y.S. Lincoln, (Eds) *Collecting and Interpreting Qualitative Materials.* London: Sage.
- Collins, K.B., Ison, R.L. and Blackmore, C.P. (2005) *River basin planning project: social learning (Phase 1).* Science Report SC050037/SR1. Published by: Environment Agency, Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, UK. 65p.
- Daniel, J.S. (1996) *Mega-Universities and Knowledge Media. Technology Strategies for Higher Education.* Kogan Page, London.
- Fell, L. and Russell, D.B. (2000) *The Human Quest for Understanding and Agreement,* In *Agricultural Extension and Rural Development: Breaking out of Traditions* (eds. R. L. Ison, and D. B. Russell) Cambridge University Press, Cambridge, UK. pp. 32-51.
- Helme, Marion (2002) *Appreciating metaphor for participatory practice: constructivist inquiries in a children and young peoples's justice organisation.* PhD Thesis, Systems Discipline, The Open University.
- Ison, R.L. (2007) *Systems thinking and practice for action research.* In Bradbury, H. and Reason, P. (eds) *Handbook of Action Research* 2<sup>nd</sup> edn. Sage (in press).
- Ison, R.L. (2005) *Traditions of understanding: language, dialogue and experience.* In Meg Keen, Valerie A. Brown & Rob Dyball (eds), *Social Learning in Environmental Management. Towards a Sustainable Future,* pp. 22-40. Earthscan: London.
- Ison, R.L. & Russell, D.B. eds (2000) *Agricultural Extension and Rural Development: Breaking Out of Traditions.* Cambridge University Press, Cambridge, UK. 239p.
- Ison, R.L. Collins, K.B and Colvin, J. (2007) *Managing complexity: a methodological approach to implementing the European Water Framework Directive through social learning and systemic inquiry* *Organization & Environment* (submitted)
- Kolb, D. (1983) *Experiential Learning: Experience as the Source of Learning and Development,* Prentice hall, Englewood Cliffs, NJ.
- Krippendorff, K. (1993) *Major metaphors of communication and some constructivist reflections on their use,* *Cybernetics & Human Knowing*, 2(1): 3-25
- Lakoff, G. and Johnson, M. (1999) *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought,* New York, Basic Books, 624p.
- Maturana, H. and Varela F. (1987) *The Tree of Knowledge: The biological roots of human understanding,* Boston, New Science Library, Shambala Publications.
- Maturana, H. and Poerkson, B. (2004) *From Being to Doing. The Origins of the Biology of Cognition.* Carl-Auer, Heidleberg.

- McClintock, D., Ison, R.L. & Armson, R. (2003) Metaphors of research and researching with people. *Journal of Environmental Planning and Management*, 46, (5) 715-731.
- McClintock, D., Ison, R.L. & Armson, R. (2004) Conceptual metaphors: a review with implications for human understandings and systems practice. *Cybernetics and Human Knowing* 11, (1) 25-47.
- Pert, C.B. (1997) *Molecules of Emotion. The science of mind-body medicine*, New York, Simon & Schuster.
- Russell, D.B. & Ison, R.L. (2000a) Enthusiasm: developing critical action for second-order R&D. In Ison, R.L. & Russell, D.B. eds *Agricultural Extension and Rural Development: Breaking out of Traditions*. Cambridge University Press, Cambridge, UK. pp. 136-160.
- Russell, D.B. and Ison, R.L. (2000b) The research–development relationship in rural communities: an opportunity for contextual science, in *Agricultural Extension and Rural Development. Breaking Out of Traditions*, pp. 10–31, R.L. Ison and D.B. Russell (eds), Cambridge University Press, Cambridge.
- Schön, D.A. (1979) Generative metaphor: a perspective on problem-setting in social policy, in Ortony, A. (ed.) *Metaphor and Thought*, Cambridge University Press, Cambridge: 254-283.
- Schön, D.A. (1995) The new scholarship requires a new epistemology. *Change* November/December 27-34.
- SLIM (2004a) SLIM Framework: Social Learning as a Policy Approach for Sustainable Use of Water, (available at <http://slim.open.ac.uk>). 41p.
- SLIM (2004b) Facilitation in Policy Processes: Developing New Professional Skills. SLIM PB4 (available at <http://slim.open.ac.uk>). 4p.
- van der Vijver, G. (1997) Who is galloping at a narrow path. *Conversation with Heinz von Foerster*. *Cybernetics and Human Knowing*, 4, 3-15.
- von Foerster, H. (1984) *Observing Systems*, Salinas, Intersystems Publications.
- von Foerster, H. (1992) Ethics and second-order cybernetics, *Cybernetics and Human Knowing*, Vol. 1, pp. 9–19.
- von Foerster, H. and Poerkson, B. (2004) *Understanding Systems. Conversations on Epistemology and Ethics*. IFSR International Series on Systems Science and Engineering, 17. Kluwer Academic, New York and Carl-Auer, Heidelberg.
- Winter, Mark and Checkland, Peter (2003) Soft systems: a fresh perspective for project management. *Civil Engineering* 156 (4) 187-92.
- Wittgenstein, L. (1999) *Philosophical Investigations*. (first published 1953 edition) Oxford p.1107.

## 12. Open University Systems courses and materials

### Packs and courses available in 2005

T551 Systems Thinking and Practice: a primer T551 is a starter pack on the principles and practice of systems thinking <http://www.ouw.co.uk/products/T551.shtm>.

T552 Systems Thinking and Practice: Diagramming T552 helps students to make more and better use of diagrams. <http://www.ouw.co.uk/products/T552.shtm>.

T553 Systems Thinking and Practice: Modelling T553 introduces the process of systems modelling and provides a brief introduction to a range of quantitative techniques that are used in systems work. <http://www.ouw.co.uk/products/T553.shtm>.

### Short Courses in the Relevant Knowledge Programme

T185 Practical Thinking: online course in perception, ideas and action –This online course explores the practical role of metaphor in shaping and transforming various areas of imagery, thinking and communication. [http://www3.open.ac.uk/courses/bin/p12.dll?C01T185\\_13\\_91](http://www3.open.ac.uk/courses/bin/p12.dll?C01T185_13_91)

T187 Vandalism in Cyberspace: understanding and combating malicious software. This course is an introduction to the downside of computing – the junk e-mail (spam), hoaxes, viruses and other kinds of malicious software which are making life a misery for internet users. <http://www3.open.ac.uk/courses/bin/p12.dll?C02T187>

T188 Making Policies Work. The main aim of this course is to enable people who work in the public sector, either as managers or policy makers, to expand their way of thinking to embrace systems, and to learn how to put this into practice in their work. [http://www3.open.ac.uk/courses/bin/p12.dll?C01T188\\_13\\_91](http://www3.open.ac.uk/courses/bin/p12.dll?C01T188_13_91)

### Undergraduate Courses

T205 Systems Thinking: Principles and Practice

This course teaches skills in systems thinking to help students cope with the practical demands of apparently complex or confusing situations. [http://www3.open.ac.uk/courses/bin/p12.dll?C01T205\\_13\\_91](http://www3.open.ac.uk/courses/bin/p12.dll?C01T205_13_91)

T306 Managing Complexity: a systems approach

This course is aimed at all those students who would like to think differently and creatively about complex issues, and to find ways of managing them more effectively. In the OU 2004 End of Course Survey this course scored particularly high for ‘application in the workplace’. External course examiner: ‘I continue to be impressed by the dedication, care and attention to detail exhibited by those responsible for guiding and examining this course’. [http://www3.open.ac.uk/courses/bin/p12.dll?C01T306\\_13\\_91](http://www3.open.ac.uk/courses/bin/p12.dll?C01T306_13_91)

TXR248 Experiencing systems (residential school)

This residential school course aims to provide practical experience of using systems concepts in complex situations. <http://www3.open.ac.uk/courses/bin/p12.dll?C01TXR248> 13 91

### **Masters in Research Methods**

T890 Technology Policy and Innovation Research

The main aim of this course is to enable students to develop a critical and evaluative understanding of research on the social implications and shaping of technology and innovation. <http://www3.open.ac.uk/courses/bin/p12.dll?C01T890>

### **Masters in Environmental Decision Making**

T863 Environmental Decision Making: a Systems Approach.

T863 aims to help students to integrate 'environment' into decision making together with other factors such as economic and political considerations. External examiner: 'This course is both exciting and relevant.' <http://www3.open.ac.uk/courses/bin/p12.dll?C01T860>

T861 Environmental Ethics

T 861 provides a framework for analysing and evaluating the beliefs and values that underlie environmental controversies. External examiner: 'assessment strategy is exceptionally well thought through. Design and material remain up to date.'

<http://www3.open.ac.uk/courses/bin/p12.dll?C02T861>

### **Masters in Information Systems**

T850 Exploring Information Systems

This course explores the thinking about the fundamentals of information systems: data and information, the nature of information systems and the technology that underpins modern information systems. <http://www3.open.ac.uk/courses/bin/p12.dll?C02T850>

T851 The Information Systems Toolkit

T851 aims to provide practical skills to those who want to develop effective information systems. <http://www3.open.ac.uk/courses/bin/p12.dll?C02T851>

T852 Learning from IS Failures

This course uses real-life examples to show how to investigate and analyse the causes of actual and potential IS failures. <http://www3.open.ac.uk/courses/bin/p12.dll?C02T852>

### T853 Information Systems Legacy and Evolution

This course examines the process of the evolution of information systems – which has replaced the old division between design, implementation and maintenance.

<http://www3.open.ac.uk/courses/bin/p12.dll?C02T853>

**Systems courses can be taken as part of the following Named Degrees,**

thus demonstrating their cross-disciplinary value as well as the flexible study opportunities this provides for students:

**BA in Business Studies with Systems**

**BA Honours (Technology)**

**BA/BSc Open University Degree**

**BSc Honours (Technology)**

**BSc Honours in Computing and Systems Practice**

**BSc in Environmental Studies**

**Diploma in Systems Practice**

**MBA (Technology Management)**

**MPA (Public Administration)**

**MSc in Environmental Decision Making**

**MSc in Information Systems**

**MSc in Technology Management**

**MSc in Technology Strategy Research**

**MSc in Development Management**

**Postgraduate Certificate and Diploma in Information Systems**

**Postgraduate Diploma in Environmental Decision Making**

**Postgraduate Diploma in Technology Management**

**Postgraduate Diploma in Development Management**

## About the authors



**Ray Ison** has been Professor of Systems at the UK Open University since January 1994 where he led a process of organisational change, when head of the Systems Department, leading to the formation of the Centre for Complexity and Change. He was foundation Director of the Postgraduate Program in Environmental Decision Making and facilitated the launching of an MSc in Information Systems. He has been actively involved in the production of new Systems Practice courses, including a new Masters in Systems Practice. He is foundation Director of the Open Systems Research Group comprising 20 researchers (see <http://systems.open.ac.uk>), one of the largest Systems research groups in the world, with research foci on Systems Thinking and Practice, Information Systems and Environmental Decision Making for Sustainable Development.

His own research and consultancy has involved developing and evaluating systemic, participatory and process-based environmental decision making, natural resource management, organisational change and R&D methodologies. He has pioneered and developed or elaborated systemic approaches including second order R&D (see book by Ison and Russell, 2000); systemic inquiry; systemic action research; managing for emergence; managing complexity; information systems; systemic modelling; communities of practice and participatory institutional appraisal (see <http://systems.open.ac.uk/page.cfm?pageid=RayIhome>). His research has elucidated how 'enthusiasm' may be triggered, deployed and fostered to achieve concerted action (social learning) in situations of complexity, uncertainty, connectedness, conflict and multiple perspectives. He has managed processes of organizational change based on 'enthusiasm', distinctions between organization and structure, and perceived complexity and has pioneered 'systemic inquiry' as a meta-level strategic managing process.



**Rosalind Armson**, a Senior Lecturer in Systems, and an engineer by original training, is Director of the Open University's PersSyst Project and has been at the Open University since 1975. This project, organised as a systemic inquiry, ran initially for three years and has now been adopted as a mainstream HR activity of the University. The initial aim was to provide a tangible, experiential and prioritised development programme for individuals and groups to build Open University (OU) internal capacity for the learning organisation and develop holistic leadership within the OU. The

programme was designed primarily, but not exclusively, for middle and senior managers; strategically selected groups; and others who are identified as having leverage in building a leadership community. To date the project has been developed and run jointly by the Systems Department (an Academic unit) and the Human Resources Division (HR). A variety of existing and forthcoming resources from across the university and beyond based on action research and systemic inquiry have been utilised. The Project Board is chaired by the OU Vice Chancellor.

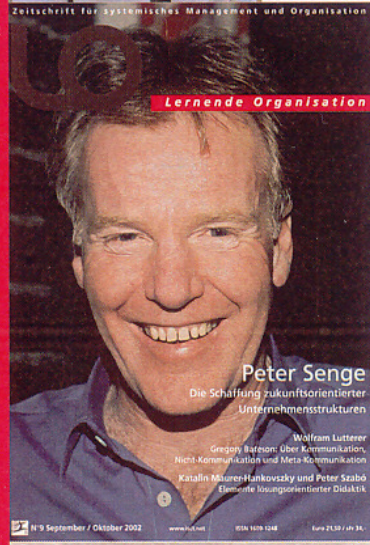
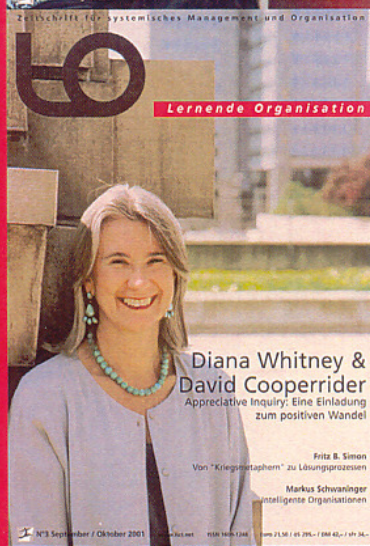
Prior to moving to PersSyst, as Head of the Systems Department (HoD), Rosalind designed, facilitated and enacted a discipline-wide process to redesign the role of the HoD, and the discipline's understanding of that role so that a much larger number of people were enabled to take responsibility for managing the discipline and to acquire the necessary understandings to make effective decisions. Within the OU Rosalind is widely regarded for high-quality teaching based on academic expertise spanning mechanical engineering, technology, mathematics and Systems where her teaching has been soundly grounded in her experience as a Systems Practitioner – both internally and through external consulting. Her teaching credits include chairing and managing the re-write of the very popular 'Managing in organisations' course as well as substantial contributions to the course 'Managing complexity. A systems approach'.

Rosalind and Ray Ison have co-supervised two PhD students whose work was based on second-order cybernetic understandings, viz:

1999-2002 - Marion Helme *'Appreciating metaphor for participatory practice: constructivist inquiries in a children and young people's social justice organisation'*

1993-96 - David McClintock *'Metaphors that inspire 'researching with people': UK farming, countryside and diverse stakeholder contexts'*





**LO** **Lernende Organisation**

**fundierte  
praxisbezogene  
serviceorientierte  
systemisch-konstruktivistische**

## Die Zeitschrift: Lernende Organisation

Manager, Führungskräfte und Personalexperten müssen immer einen Schritt voraus sein, um erfolgreich zu bleiben. LO – die Zeitschrift für systemisches Management und Organisation – bietet Ihnen im Zweimonatstakt topaktuelle, praxisbezogene Information über Zukunftsthemen aus erster Hand:

Weltweit anerkannte Experten wie Peter Senge, Paul Watzlawick, Fritz Simon, Art Kleiner, Richard Axelrod, Humberto Maturana etc. aber auch Praktiker schreiben in der LO unter anderem über Leadership, Wissensmanagement, Personalentwicklungswerkzeuge, Teamoptimierung und Change Management.

☐ Ja, ich möchte die Zeitschrift ab sofort abonnieren. Das Jahresabo kostet € 116,- (inkl. MwSt.)\* und ist jederzeit schriftlich vier Wochen vor Erscheinen der nächsten Ausgabe kündbar.

☐ Ja, ich nutze das sensationelle Mini-Abo: Drei Ausgaben der LO um nur € 39,- (inkl. MwSt. und Zustellkosten).

☐ Ja, ich bestelle zunächst die kommende Einzelausgabe der Zeitschrift um € 21,50 (inkl. MwSt.)\*.

Die angegebenen Kosten verstehen sich inkl. Zustellkosten innerhalb von Österreich. Für die Zustellung in andere EU-Länder sowie in die Schweiz verrechnen wir € 21,- und für die Zulieferung in Länder außerhalb Europas € 31,50 pro Jahresabo bzw. € 3,50 (Europa) und € 5,25 (Welt) für eine Einzelausgabe.

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